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ABSTRACT

The research study measures changes in political attitudes of high school students after playing the game "Democracy." The primary purpose of the experiment was to determine if role identification and game structure are primarily responsible for the effects of the game upon the player's attitudes. The player takes the role of a congressman who discovers that he must engage in "log-rolling", acceptance of which is the main dependent variable measured in the study. Three other variables investigated are the student's subjective estimate of the prevalence of log-rolling in congress, his political efficacy, and his intention to participate in the political process. One control and four experimental treatments were employed for this study. The scores show that: 1) both game structure and role identification contribute to the effectiveness of the game in changing student attitudes toward acceptance of log-rolling; 2) students think a great deal of log-rolling occurs; 3) student political efficacy decreased slightly after playing the game; and 4) student intention to participate in the political process was not significantly affected. The results have implications for curriculum designers concerned about the impact of materials on student attitudes. (SJM)

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ROLE IDENTIFICATION AND GAME STRUCTURE: EFFECTS ON POLITICAL ATTITUDES

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Role Identification and Game Structure: Effects on Political Attitudes

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INTRODUCTORY STATEMENT

The Center for Social Organization of Schools has two primary objectives; to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through five programs to achieve its objectives. The Academic Games Program has developed simulation games for use in the classroom. It is evaluating the effects of games on student learning and studying how games can improve interpersonal relations in the schools. The Social Accounts program is examining how a student's education affects his actual occupational attainment, and how education results in different vocational outcomes for blacks and whites. The Talents and Competencies program is studying the effects of educational experience on a wide range of human talents, competencies, and personal dispositions in order to formulate -- and research -- important educational goals other than traditional academic achievement. The School Organization program is currently concerned with the effects of student participation in social and educational decision-making, the structure of competition and cooperation, formal reward systems, effects of school quality, and the development of information systems for secondary schools. The Careers and Curricula program bases its work upon a theory of career development. It has developed a self-administered vocational guidance device to promote vocational development and to foster satisfying curricular decisions for high school, college, and adult populations.

This report, prepared by the Academic Games Program, examines a specific simulation game to determine what features are responsible for the game's effectiveness in producing attitude change.

ACKNOWLEDGMENT

We thank Elizabeth Wells, Bruce Campbell, Ann DeGiovanni, and Marie Cain for their cooperation and assistance in conducting the experiment reported here.

ABSTRACT

The effectiveness of the simulation game Democracy in changing high school students' political attitudes was experimentally shown to depend on both the game structure and the identification of the player's role as that of a congressman. Both these features tended to lead the students to accept "log-rolling" as part of the legislative process in a democracy. These same features interacted to produce a small decrease in the students' political efficacy. The students' intentions to participate in the political process were not significantly affected.

INTRODUCTION

A number of research studies have shown that simulation games, administered under classroom conditions, can effectively change students' opinions and attitudes. (For a review of several of these studies, see Livingston and Stoll, 1972, Ch. 5.) One fairly predictable effect of simulation games on the players' attitudes is that players become more tolerant of certain behaviors in real life if they have (symbolically or actually) engaged in similar behaviors in the game. For example, Cherryholmes (1965) found that after playing the Inter-Nation Simulation, high school students became more tolerant of alliances between the United States and foreign dictatorships.

One game which seems to be particularly effective in producing attitude change of this type is the Democracy game (Coleman, 1969). In this game the player takes the role of a congressman. In the course of the game he discovers that he must engage in "log-rolling" (i.e., "you vote for my bill and I'll vote for yours") in order to protect the key interests of his (simulated) constituents. As a result, most players become less inclined to view "log-rolling" as unfair, undemocratic, or dishonest. (See Livingston, 1972, for an experimental verification of this effect.)

The primary purpose of the present experiment was to determine which features of the Democracy game are responsible for its effectiveness at bringing about this one particular type of attitude change. From this

point of view, the two most relevant features of the Democracy game are its role identification, which labels the player's role as that of a congressman, and its game structure (i.e., the rules of the game), which induces the player to engage in log-rolling and rewards him for doing it effectively. Which of these features - role identification or game structure - is primarily responsible for the effects of the game on the players' attitudes? Are both features necessary? How will a student's attitude toward log-rolling by congressmen be affected if the student plays a game in which he engages in log-rolling but is not identified as a congressman? What will be the effect of an exercise in which the student plays the role of a congressman but is not strongly induced, by the structure of the exercise, to engage in log-rolling?

The answers to these questions have important implications for curriculum designers who are concerned about the impact of their materials on students' opinions and attitudes. If the role-taking aspect of the game contributes nothing to its effectiveness, then simulation-game designers need not take extra time and effort to make their games appear more realistic. On the other hand, if the structure of the game contributes nothing to its effectiveness, then curriculum designers can concentrate on writing scenarios for role-playing exercises, instead of attempting to simulate, in game form, the incentives that influence behavior in the real world.

Although the student's acceptance of log-rolling was the main dependent variable in this experiment, other political beliefs and attitudes were investigated also. One of these was the student's subjective estimate of the prevalence of log-rolling in Congress. Another was political efficacy - the belief in one's own ability to understand and influence the actions of government. (The Democracy game has already been found to increase the

political efficacy of younger students; see Vogel, 1970.) A third (3) type of attitude investigated was the student's intention to participate in the political process.

METHOD

The experimental treatments

The present study employed a control treatment and four experimental treatments. The control treatment was a simulation game that was assumed to be irrelevant to the students' political attitudes, since it had nothing to do with politics or group decisions.[1] One of the four experimental treatments was the Democracy game. The other three experimental treatments were all derived from the Democracy game and were incomplete versions of that game.

The first of these versions was an abstract simulation that left the game structure intact but removed all references to politics and legislation. In this version the player was simply identified as a member of a group which had to make several choices. These choices were identified only by letter names: A vs. B, P vs. Q, and so on. The players were not identified as representatives of a constituency, but instead were assigned personal interests in the outcome of each choice. The rules were adapted, phrase by phrase, from those of the Democracy game, by removing all political terms. "Congress in session" became a "group meeting"; a "roll call vote" became a "group decision"; and so on.

The second incomplete version of the Democracy game was a structured role-play exercise in which only the scoring was removed from the game. Scoring in the Democracy game is accomplished by using "constituency cards" that give numerical values for the preferences of the player's simulated constituency. To remove the scoring, a set of "profile cards" was used in place of the constituency cards. These profile cards gave a brief description of the player's simulated constituency and his constituents' preferences, but no numerical values. A sample message from one of these profile cards

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[1] This game was Trade and Develop, (Livingston, 1969) which simulates economic growth in an international economy.

is the following:

> You are a congressman from a West Coast state. Your district contains industries that get a lot of defense contracts, and your constituents are in favor of more defense spending. They are also generally in favor of civil rights laws. Your state already has a good educational system and a good state medical program, and your constituents are against new Federal programs in these areas. Many of your constituents are also concerned about conservation of wilderness areas. They are against the proposed large dam and in favor of new national parks.

The instructions for this version were copied word-for-word from the rules of the Democracy game, except that all references to the scoring system of the game were deleted and any rules that referred to the cards were changed to reflect the change in the cards.

The third incomplete version of the Democracy game was an unstructured role-play exercise that made use of the same profile cards as the previous version but was not based on the rules of the Democracy game. The rules for the Democracy game (and for the structured role-play) divide the game into a series of steps, including a separate step labeled "Bargaining Session," during which the players are told that, "You are free to move around, talk with other players, and try to line up votes for the bills in which you are most interested." In the unstructured role-play there was no step-by-step procedure. Instead, the rules specified only that "Issues may be voted on immediately, after debate, or after a recess. A recess is a short period in which Congress is not in session; this gives the members a chance to talk privately with each other about the issues." Also, in the Democracy game (and in the structured role-play) the player is given a work sheet which contains a section labeled "Agreements made"; in the unstructured role-play the players did not receive a work sheet.

The dependent variables

The main dependent variable in this experiment was the student's acceptance of the practice of log-rolling by Congressmen, measured by the following three-item scale:

> Suppose two groups of Congressmen make an agreement:
> "You vote for our bill and we'll vote for your bill."
>
> | | Yes | No |
> |---|---|---|
> | Do you think this is unfair? | ( ) | ( ) |
> | Do you think this is undemocratic? | ( ) | ( ) |
> | Do you think this is dishonest? | ( ) | ( ) |

The second dependent variable was the student's subjective estimate of the prevalence of log-rolling. This variable was measured by a single item, placed directly after the three items on acceptance of log-rolling. The item simply asked, "How often do you think agreements like this are made in Congress?" The student's options were "Very often," "Fairly often," "Sometimes," "Occasionally," and "Almost never."

A third dependent variable was the student's political efficacy - the belief that he can understand and influence the political process. Political efficacy was measured by a scale consisting of the following four statements:

> Ordinary people can influence the Government if they work at it.
>
> Sometimes politics and government seem so complicated that a person like me can't really understand what's going on.
>
> The average person can't do much about politics and government.
>
> I think I understand politics fairly well.

The response options for each statement were "I definitely agree," "I tend to agree," "I tend to disagree," and "I definitely disagree."

A fourth dependent variable was the student's intention to participate in the political process, measured by a scale consisting of four questions:

Do you intend to register to vote as soon as you are 18?

Would you write a letter to your Congressmen telling him how you felt about a political issue?

Would you work as a volunteer in an election campaign (handing out leaflets, and so on) for a candidate you favored?

Would you contribute money to the campaign fund of a candidate you favored?

The response options for these questions were "Yes, definitely," "Probably," "I might," "Probably not," and "Definitely not."

Subjects and Procedure

The subjects for this experiment were 218 students in the public high school of a small city in central Florida - an almost entirely white, middle-class population. Most of the students were 15 or 16 years old; a few were 14 or 17. The students were assigned at random to the five treatment groups. All the activities of the experiment were conducted in a single two-hour session and administered in a single large room, the school cafeteria. All the treatment groups played their respective games for the same length of time - about an hour and ten minutes. The questionnaires were administered immediately after the games, with no intervening discussion. The students were supervised by four of their regular teachers and one of the experimenters. Each supervisor was in charge of one of the treatment groups; the experimenter supervised the control group (that is, the group that played the irrelevant game).

RESULTS

Table 1 presents the means and standard deviations for each treatment group on each of the four variables. These scores have been linearly transformed so that +1.00 represents the maximum possible score, -1.00 represents the minimum possible score, and 0.00 represents a neutral position. Figure 1 shows the treatment group means and their 95% confidence intervals.

The scores for acceptance of log-rolling show that both game structure and role identification contribute to the effectiveness of the game in changing attitudes. The control treatment produces the lowest scores; the complete Democracy game produces the highest scores, and the mean score for the structured role-play falls between those for the unstructured role-play and the complete simulation. The scores for the student's subjective estimate of the prevalence of log-rolling show the same pattern. A high score indicates that the students think a great deal of log-rolling occurs.

This expected pattern does not fit the scores on the other two dependent variables. The scores on political efficacy are highest for the unstructured role-play and lowest for the structured role-play. The group that played the complete Democracy game showed slightly less political efficacy than the control group. The scores on intention to participate showed little systematic difference between treatment groups. The group that played the complete Democracy game scored highest, as might be expected, but the group that participated in the structured role-play scored lowest.

If the structured role-play treatment is removed from the analysis, it is possible to consider the remaining four treatments as a 2 x 2 factorial design, in which the factors are the structure of the Democracy game and the identification of the player's role as that of a congressman. A multi-

variate analysis of variance and four univariate analyses of variance were carried out on the basis of this design.[1] The results are shown in Table 2. The multivariate test shows that both main effects (i.e., those for game structure and role identification) are significant well beyond the .01 level, while the interaction effect narrowly misses significance at the .05 level. The univariate analysis showing the largest treatment effects is the one for acceptance of log-rolling. As in the multivariate test, the two main effects are significant beyond the .01 level, while the interaction effect narrowly misses significance at the .05 level. Together the two main effects account for about 14 per cent of the total variance; the interaction effect accounts for less than two per cent. In the analysis for the students' subjective estimates of the prevalence of log-rolling, the two main effects are significant and together account for about six percent of the total variance. For political efficacy, only the interaction effect is significant, and it accounts for about three percent of the total variance. This interaction effect represents not an increase, but a decrease in political efficacy when both factors (game structure and role identification) are present, as can be seen in Figure 1. No effects are significant for intention to participate in the political process.

Table 3 shows the internal-consistency estimates and intercorrelations of scores on the four dependent variables for the entire sample (all five treatment groups). Table 3 also shows, in parentheses, the pooled within-cell correlations among the four dependent variables, for the four treatment groups in the 2 x 2 design. The internal-consistency estimate, indicated by α, is a measure of the extent to which the in-

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[1] These analyses were carried out by means of the computer program Multivariance (Finn, 1968) which computes a least-squares solution.

dividual students responded in the same way to all the items on the questionnaire scale.[1] No internal-consistency estimate is possible for the student's estimate of the prevalence of log-rolling, since it was measured by only a single questionnaire item. The two variables having to do with log-rolling are positively related; students who accept log-rolling are more likely to think it occurs frequently in the U.S. Congress. Political efficacy is positively related to intention to participate; students who feel that they can understand and control the actions of government are more likely to express an intention to participate in the political process.

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1 This coefficient (α) can be interpreted as an estimate of the proportion of the total variance which is common to all the items on the scale.

DISCUSSION

The main purpose of this experiment was to identify the features of the Democracy game that make it effective in teaching students that "log-rolling" is an acceptable part of the legislative process in a democracy. The results show that both the game structure and the role identification in the Democracy game contribute to this effectiveness. The reasons for the effectiveness of these features of the game remain a matter for speculation. The effect of role identification may be the result of the player's tendency to empathize with his assigned role; persons who play the role of a congressman may become generally more approving of congressmen and all that they do. The effect of the game structure may be the result of the player's increased understanding of the nature and effects of the exchange process in a decision-making group.

The effects of the experimental treatments on the students' subjective estimate of the prevalence of log-rolling indicate that the same features of the game that lead the students to accept log-rolling also lead them to believe that it occurs frequently. The positive effect of role-identification on this variable may indicate that the students in the unstructured role-play engaged in some log-rolling, though presumably to a lesser extent than the students playing the Democracy game.

The effects of the experimental treatments on the students' political efficacy was somewhat surprising, showing a negative effect for the combination of role identification and game structure. Possibly the Democracy game teaches that a congressman must sometimes bargain away the interests of a few constituents in order to protect the larger interests of his constituency. If so, a perceptive student might well infer that since congressmen generally know what the main interests of their constituencies are, they will be relatively unresponsive to isolated attempts to influence their actions on other issues.

Although this explanation is offered after the fact, it may account for the difference (in the effects of the Democracy game on political efficacy) between this experiment and previous research with younger subjects (Vogel, 1970; Livingston, 1972.)[1]

Implications of the results of this experiment for designers of social studies curriculum materials are fairly clear. The curriculum designer who wants the students to become more inclined to accept some real life activity as necessary or desirable should use a simulation game rather than a role-playing exercise. That is, there should be rules and a scoring system to motivate and control the players' behavior. And in the game, the roles of the players should be clearly identified; the game should not be presented in abstract terms. These results also imply that simulated experiences which seem to increase the students' understanding of some aspect of real life do not necessarily increase the students' feelings of efficacy in that area.

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[1] A finding similar to that of the present experiment was reported by Cohen (1969), who used the Democracy game in a summer-school program for "unmotivated" junior high school students. After playing the game, the students expressed greater agreement with the statement: "Sending letters to congressmen is a waste of time."

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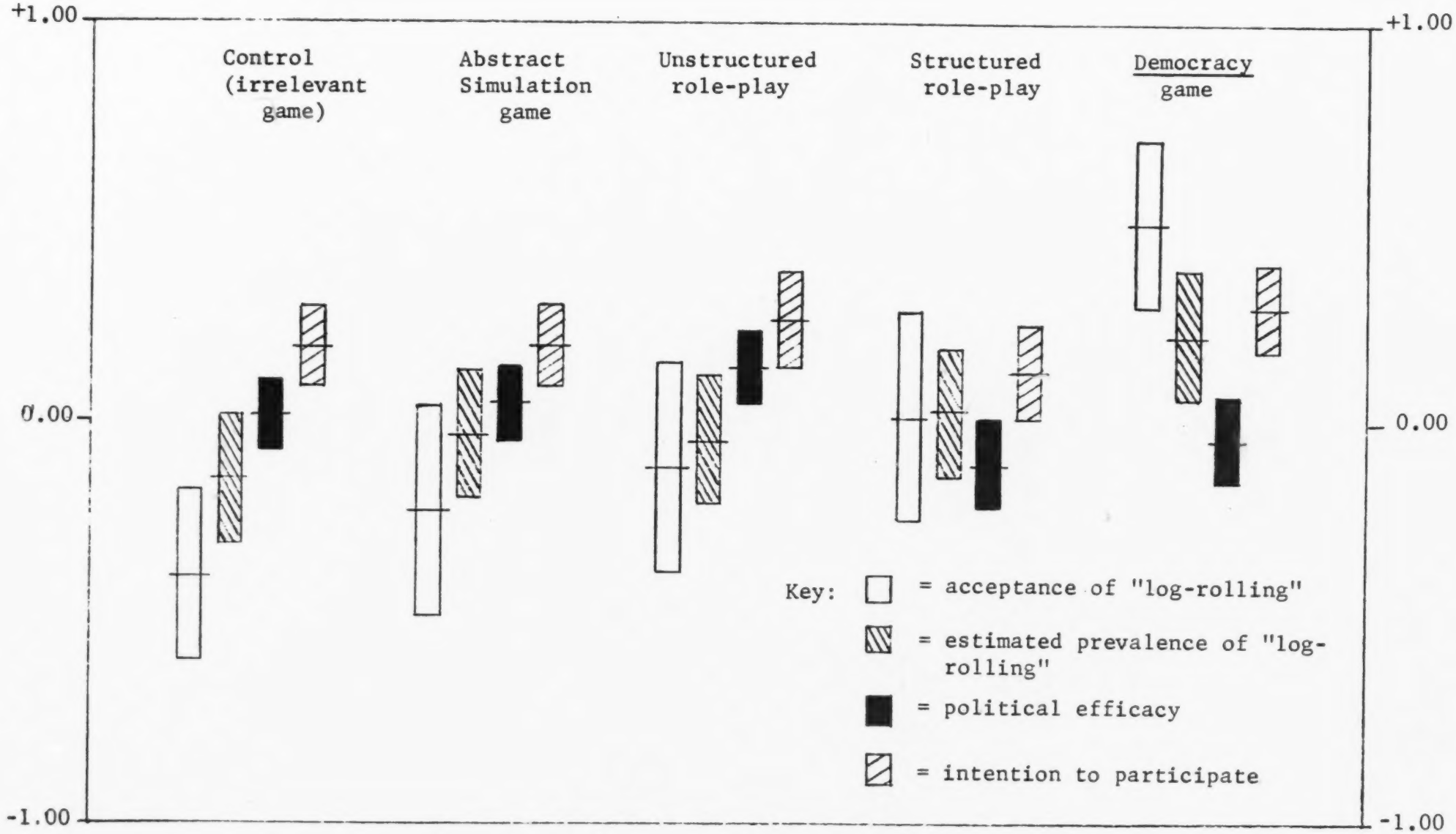

Figure 1. Means and 95% confidence intervals for each treatment group on each dependent variable.

Table 1. Means and standard deviations, for each treatment group, on each dependent variable.

Treatment:	Control (irrelevant game)	Abstract simulation game	Unstructured role-play	Structured role-play	Democracy game
number of students	44	42	47	40	45
Scores:					
Acceptance of log-rolling	-.38 (.71)	-.22 (.83)	-.11 (.87)	+.02 (.81)	+.50 (.71)
Prevalence of log-rolling	-.14 (.52)	-.03 (.52)	-.04 (.54)	+.03 (.49)	+.22 (.53)
Political efficacy	+.02 (.31)	+.05 (.30)	+.14 (.30)	-.10 (.36)	-.04 (.36)
Intended participation	+.19 (.32)	+.19 (.33)	+.26 (.40)	+.13 (.39)	+.29 (.35)

Table 2. Multivariate and Univariate analyses of variance for 2 x 2 design.

Source of variation	Multivariate df		Univariate df	Acceptance of log-rolling	Prevalence of log-rolling	Political efficacy	Intention to participate
Game	4;171	F=4.30 p<.01	1;174	F=10.83 p<.01 η^2=.053	F=6.03 p<.02 η^2=.032	F=2.82	F=0.09
Role	4;171	F=5.20 p<.001	1;174	F=17.33 p<.001 η^2=.084	F=5.14 p<.03 η^2=.028	F=0.19	F=2.46
Interaction	4;171	F=2.38 p<.06	1;174	F=3.58 p<.07 η^2=.017	F=0.97	F=4.88 p<.03 η^2=.027	F=0.09

Table 3. Intercorrelations and internal-consistency estimates of dependent variables (n= 218 for overall correlations; df=174 for within-cell correlations shown in parentheses).

	Prevalence of log-rolling	Political efficacy: α =.43	Intention to participate: α =.63
Acceptance of log-rolling: α =.79	.25** (.19)	-.06 (-.08)	.11 (.08)
Prevalence of log-rolling		.05 (.10)	.03 (.02)
Political efficacy: α =.43			.33** (.37**)

** Significantly different from zero: $p < .01$.